

Drugs of Abuse

Posts From the Sara Bellum Blog

Table of Contents

- Introduction..... 1
- How To Use This Teaching Guide 1
- Sara Bellum Blog Posts and Discussion Questions3
 - What Is a Drug?.....4
 - Discussion Questions: What Is a Drug?5
 - Related Resources5
 - Can Smoking Marijuana Actually Lower Your IQ?6
 - Discussion Questions: Can Smoking Marijuana Actually Lower Your IQ?7
 - Related Resources7
 - Rx Drug Abuse.....8
 - Discussion Questions: Rx Drug Abuse9
 - Related Resources9
 - Prescription Stimulants Affect People With ADHD Differently10
 - Discussion Questions: Prescription Stimulants Affect People With ADHD Differently.....11
 - Related Resources11
 - Word of the Day: Depressants12
 - Discussion Questions: Word of the Day: Depressants13
 - Related Resources13
 - Cough and Cold Medications: Use Only as Directed.....14
 - Discussion Questions: Cough and Cold Medications: Use Only as Directed15
 - Related Resources15
 - Word of the Day: Polyneuropathy.....16
 - Discussion Questions: Word of the Day: Polyneuropathy17
 - Related Resources17



Drugs of Abuse

Posts From the Sara Bellum Blog

Table of Contents (CON'T)

What Are Designer Drugs?.....	18
Discussion Questions: What Are Designer Drugs?	19
Related Resources	19
Cocaine and the Teen Brain	20
Discussion Questions: Cocaine and the Teen Brain	21
Related Resources	21
Real Teens Ask About Effects of Heroin	22
Discussion Questions: Real Teens Ask About Effects of Heroin	23
Related Resources	23
Meth Mouth and Crank Bugs: Meth-a-morphosis	24
Discussion Questions: Meth Mouth and Crank Bugs: Meth-a-morphosis.....	25
Related Resources	25
Meet Molly: The Truth About MDMA.....	26
Discussion Questions: Meet Molly: The Truth About MDMA.....	27
Related Resources	27
“Spice” – Not as Fun as it Sounds	28
Discussion Questions: “Spice” – Not as Fun as it Sounds	29
Related Resources	29
Keep “Bath Salts” in the Tub.....	30
Discussion Questions: Keep “Bath Salts” in the Tub	31
Related Resources	31
Binge Drinking Matters – To Your Brain	32
Discussion Questions: Binge Drinking Matters – To Your Brain	33
Related Resources	33
More Resources.....	34

Drugs of Abuse

Posts From the Sara Bellum Blog

Introduction

The purpose of the Sara Bellum Blog teaching guide “Drugs of Abuse” is to provide educators with a series of relevant blog posts that complement health curricula about drug abuse by providing reliable and up-to-date information on how drugs affect the brain and body. The posts are written for teens in middle and high school.

You will find 15 blog posts from the Sara Bellum Blog. The first post defines what a drug is, and the subsequent posts discuss specific topics related to individual drugs.

Discussion questions and related resources accompany each post. You’ll also find ideas for how to use the posts with teens and additional resources.

The Sara Bellum Blog

A team of NIDA scientists and science writers created the Sara Bellum Blog in 2009 to connect teens in middle and high school with the latest scientific research and news about drug abuse and addiction. The Sara Bellum Blog discusses a wide range of topics related to drug abuse and addiction, including facts about drugs of abuse, peer pressure, and mental health.

About the National Institute on Drug Abuse

The National Institute on Drug Abuse (NIDA) is a part of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world’s research on how drug abuse impacts the brain and body, including how it leads to addiction. In addition to supporting and conducting research, NIDA disseminates its findings through science-based materials such as Web sites, publications, and curricula supplements.

How To Use This Teaching Guide

You can use the blog posts in this guide as discussion starters, handouts, or take-home assignments for teens. The posts focus on a common theme—drug abuse—and can be used as a group or individually.

Following are several ideas for how to incorporate Sara Bellum Blog posts into your drug abuse prevention lessons:

- **Small Group Discussions:** In small groups, have students read one or several posts and ask the groups to discuss the information in the post(s). Provide students with the discussion questions for the post(s) to help guide their conversations. Ask each group to present to the whole class what new information they learned, what they thought was most interesting, and why they think the information is important.

Drugs of Abuse

Posts From the Sara Bellum Blog

- **Discussion Launch:** Review one post with the whole class and then facilitate a discussion about drug abuse and addiction using the discussion questions provided for that post.
- **Reaction Discussion:** Read one post aloud to the class and ask students to share their reactions to the information. Does anything change how they view drugs or drug abuse? How might the information in the post be useful?
- **Supplemental Handouts:** Print individual posts to give as handouts that provide supplemental information about specific topics related to drug abuse.
- **Writing Prompt:** Ask students to read one post and then write about what they learned and how the information relates to their lives. Or, ask students to write an answer to one of the discussion questions.
- **Blog Writing Activity:** Ask students to read several posts from the guide and then write their own blog post.
 - **Facts Post:** Ask students to write a blog post that shares the facts they learned from the Sara Bellum Blog posts they read.
 - **Personal Experience Post:** Ask students to write a post in the style of the Sara Bellum Blog that shares a personal experience with drugs, drug abuse, or addiction in their schools or communities.
 - **Discussion Post:** Ask students to write a post that responds to one of the discussion questions provided with each post.
- **Presentation Project:** Ask students to read a post and develop a short presentation about the topic and why it is important.
- **Social Media Activities:** Ask students to read a post and then write Facebook or Twitter messages using the information they learned. If your class or school has its own social media channels, you could share the Facebook posts and tweets there. Asking students to summarize the posts in the short blurbs required for social media could be an interesting paraphrasing exercise.
- **Comment:** Ask students to read one post and then write a response to that post. They could even publish their comment on the original post by going to the URL provided for each post.
- **Homework Discussion Questions:** Assign one or several posts as homework, but do not include the discussion questions. Ask students to read the post(s) and develop a list of their own discussion questions for each.
- **Poster Project:** Ask students to read a post and develop a poster or cartoon that shows the key facts and points of that post.

Drugs of Abuse

Posts From the Sara Bellum Blog

- **Multimedia Project:** Ask students to read several posts and develop a storyboard (scene outline) and script for a podcast, public service announcement (PSA), or video that shares the information they learned. If time allows, teens could break into groups and record the podcasts, PSAs, or videos they developed.

Sara Bellum Blog Posts and Discussion Questions

The posts in this guide discuss topics related to specific drugs of abuse. Each post is followed by discussion questions and related resources.

Drugs of Abuse

Posts From the Sara Bellum Blog

What Is a Drug?

By The Sara Bellum Blog Team



There are many different types of drugs—from cough medicine to aspirin to prescription pain medications to street drugs like cocaine. In this post, we are dealing with illicit “drugs of abuse” like marijuana, heroin, and cocaine.

Put simply, drugs of abuse are chemicals that can deliver a destructive blow to the brain’s collection of neurons, circuits, and systems, all designed to work in harmony.

What Is Addiction?

Drugs can actually reprogram the brain, so that every time a person takes the drug, the effect is a little weaker, which requires taking more and more of it to get the same feeling. Eventually, a person becomes dependent on the drug and compulsively uses it not so much to feel good but to keep from feeling bad. That is the “sneaky” part of addiction.

Someone addicted to drugs will feel nauseated when too much time passes before they can get the drug into their bodies. Eventually, so many additional brain systems become disrupted by repeated use that obtaining and using that drug becomes the sole focus of a user’s life, despite devastating consequences—and that’s the real nature of addiction.

So, next time somebody offers you a joint, a drink of alcohol, or even a cigarette, think of an army of molecules quietly sneaking into the deepest crevices of your brain and beginning to wreak havoc on the very essence of “you.”

Find the original blog post at <http://teens.drugabuse.gov/blog/post/real-teens-ask-what-drug>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: What Is a Drug?

1. What is a drug?
2. How does addiction work?
3. Can drugs change the way your brain works?

Related Resources

- *Word of the Day: Axon*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/word-day-axon>
- *Word of the Day: Addiction*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/word-day-addiction>
- *Drug Facts*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts>
- *Drug Facts: Addiction and the Brain*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/brain-and-addiction>
- *Drugs, Brains, and Behavior: The Science of Addiction*, National Institute on Drug Abuse: <http://www.drugabuse.gov/publications/science-addiction>

Drugs of Abuse

Posts From the Sara Bellum Blog

Can Smoking Marijuana Actually Lower Your IQ?

By Carol Krause, Chief of the Public Information and Liaison Branch at the National Institute on Drug Abuse

Many teenagers assume smoking weed is harmless because of all the myths floating around saying it's safe. What few people know is that the age you start using marijuana actually makes a difference. In fact, if you start smoking it as a teenager, there can be some serious problems for you down the road.

Although we already knew from past research that if you start smoking pot as a teen, you'll be more likely to get addicted, new research (just published in a well-known journal called *Proceedings of the National Academy of Sciences*) now says if you smoke marijuana heavily as a teenager, it can actually lower your IQ!

Scientists looked at more than 1,000 people born in 1972 and 1973. When they were 13 years old, they were given IQ and other kinds of intelligence tests. They were interviewed every few years about their use of marijuana and then tested again when they were 38 years old.

The results? Those who smoked weed heavily as teens showed mental decline even after they quit using the drug—and had, on average, an 8-point drop in their IQ scores. An 8-point loss could push a person of average intelligence into the lower third of testers. Those who started smoking pot after age 18 also showed some decline, but not as much.

This was an interesting study because it also collected information from people who knew the study participants. They reported that people who smoked marijuana heavily had more memory and attention problems and did not organize their lives as well, misplacing things and forgetting to keep appointments, pay bills, or return calls. This highlights the lasting effect marijuana can have on the teenage brain, which is still developing and still wiring itself to handle the onslaught of information it gets every day. The toxic chemicals in marijuana can mess up that wiring process and hurt your ability to do well in school and in life.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/can-smoking-marijuana-actually-lower-your-iq>.



Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Can Smoking Marijuana Actually Lower Your IQ?

1. Why is the age that someone starts abusing marijuana so important?
2. How can using marijuana as a teen affect that teen's whole life?
3. What did researchers look at in addition to IQs to determine the impact of marijuana on young users?

Related Resources

- *Can It Be Bad If It's Natural?* Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/can-it-be-bad-if-its-natural>
- *Perception of Risk: Fewer Teens Believe Marijuana Is Harmful*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/fewer-teens-believe-marijuana-harmful>
- *FACT: Driving After Using Marijuana Is Dangerous*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/fact-driving-after-using-marijuana-dangerous-o>
- *Drug Facts: Marijuana*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/marijuana>
- *Monitoring the Future*, National Institute on Drug Abuse and University of Michigan: <http://www.monitoringthefuture.org>

Drugs of Abuse

Posts From the Sara Bellum Blog

Rx Drug Abuse

By The Sara Bellum Blog Team



Have you ever wondered about whether medications prescribed by a doctor could actually be dangerous? Or whether giving a friend a prescription pill you take for ADHD could be bad for them?

Sometimes, people assume that if your doctor prescribes you medications, then they are safe for anyone. Prescription drugs, like Ritalin or Adderall for ADHD, or Tylenol 3 or Percocet for pain, can be extremely effective when used as prescribed...by the people they were prescribed for.

But people who have not been seen by a doctor for these conditions are asking friends to share their drugs for a variety of reasons. For example, Adderall and Ritalin belong to a class of drugs called stimulants—that is, they stimulate your brain and make you feel more alert. Teens might think that's an advantage when taking a test at school. However, that kind of use is actually drug abuse and can hurt you.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/rx-drug-abuse>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Rx Drug Abuse

1. Is taking a prescription medication that was not prescribed to you considered drug abuse?
2. Because prescription drugs are prescribed by a doctor, does that make them safer than illicit drugs even if they are not taken as prescribed?
3. Do all prescription medications have the same health effects?

Related Resources

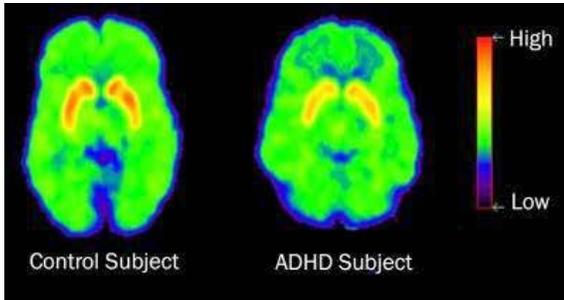
- *During National Drug Facts Week: The Truth About Prescription Drugs*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/truth-about-prescription-drugs>
- *Prescription Drugs on TV*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/prescription-drugs-tv>
- *Prescription Stimulants Affect People With ADHD Differently*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/prescription-stimulants-affect-people-adhd-differently>
- *Drug Facts: Prescription Drug Abuse*, NIDA for Teens:
<http://teens.drugabuse.gov/drug-facts/prescription-drugs>
- *More Information About Prescription Drug Abuse*, PEERx Program:
<http://teens.drugabuse.gov/our-projects/peerx>
- *Choose Your Path Videos*, PEERx Program:
<http://teens.drugabuse.gov/our-projects/peerx/choose-your-path>

Drugs of Abuse

Posts From the Sara Bellum Blog

Prescription Stimulants Affect People With ADHD Differently

By The Sara Bellum Blog Team



From this positron emission tomography (PET) scan, you can see how natural dopamine levels are different in people with and without ADHD. The scan on the left shows the brain of someone without ADHD, and the scan on the right shows the brain of someone with ADHD. The greater concentration of yellow, orange, and red in the nucleus accumbens in the scan on the left reflects a higher amount of dopamine.

There've been lots of headlines lately about the dangers of prescription drug abuse—like taking a friend's prescription.

BUT—for people who do not have ADHD, stimulants flood the brain with dopamine, causing a dopamine overload. So instead of having a calming effect as they would on people with ADHD, stimulants taken without a medical reason can disrupt brain communication and cause euphoria.

It might feel good at first, but repeated abuse of stimulants can:

- Increase blood pressure, heart rate, and body temperature.
- Decrease appetite and sleep.
- Cause feelings of hostility and paranoia.
- Increase a person's risk for addiction.

Doctors take many factors into account when prescribing a drug for a person who needs it: dose size, the person's weight and height, how long the drug should be taken, and much more. The bottom line is that drugs affect everyone differently.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/prescription-stimulants-affect-people-adhd-differently>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Prescription Stimulants Affect People With ADHD Differently

1. What is one difference between the brains of people with and without ADHD?
2. How do ADHD medications affect people without ADHD?
3. What are some of the risks for a person who takes ADHD medications not as prescribed or without a prescription?

Related Resources

- *During National Drug Facts Week: The Truth About Prescription Drugs*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/truth-about-prescription-drugs>
- *Prescription Drugs on TV*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/prescription-drugs-tv>
- *Drugs Facts: Prescription Stimulants*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/prescription-stimulants>
- *Drug Facts: Prescription Drug Abuse*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/prescription-drugs>
- *More Information About Prescription Drug Abuse*, PEERx Program: <http://teens.drugabuse.gov/our-projects/peerx>
- *Choose Your Path Videos*, PEERx Program: <http://teens.drugabuse.gov/our-projects/peerx/choose-your-path>

Drugs of Abuse

Posts From the Sara Bellum Blog

Word of the Day: Depressants

By The Sara Bellum Blog Team



What’s the first thing you think of when you hear the word “depressants?” Maybe “depressed” or “sad?” But the drugs called depressants aren’t called that because they’re depressing in the emotional sense.

Depressants slow down (or “depress”) the normal activity that goes on in the brain. Alcohol is a depressant.

Doctors often prescribe central nervous system (CNS) depressants to patients who are anxious or can’t sleep. When used as directed, CNS depressants are safe and helpful for people who need them.

Types of CNS Depressants

CNS depressants can be divided into three main groups:

- **Barbiturates**, which are used to treat some forms of epilepsy
- **Benzodiazepines** (Valium, Xanax), which can be used to treat severe stress, panic attacks, convulsions, and sleep disorders
- **Sleep medications** (Ambien, Sonata, Lunesta), which, as the name suggests, are used to help people with diagnosed sleep problems

How They Work

Most CNS depressants affect the brain in the same way—they enhance the activity of the gamma-aminobutyric acid (GABA). GABA is a neurotransmitter, one of the naturally occurring chemicals in the brain that sends messages between cells. GABA works by slowing down brain activity.

Although different classes of CNS depressants work in unique ways, they ultimately increase GABA activity, which produces a drowsy or calming effect.

Effects When Abused

CNS depressants can be addictive and should be used only as prescribed. Otherwise, they can bring about major health problems, including addiction. Combining them with alcohol or other drugs like pain medications can lead to slowed breathing and heart rate, and even death.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/word-day-depressants>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Word of the Day: Depressants

1. Why are barbiturates, benzodiazepines, and sleep medications called “depressants”?
2. How do depressant medications interact with the brain?
3. What are some of the risks associated with using depressants not as directed or without a prescription?

Related Resources

- *During National Drug Facts Week: The Truth About Prescription Drugs*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/truth-about-prescription-drugs>
- *Prescription Drugs on TV*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/prescription-drugs-tv>
- *Drugs Facts: Central Nervous System (CNS) Depressants*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/central-nervous-system-cns-depressants-facts>
- *Drug Facts: Prescription Drug Abuse*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/prescription-drugs>
- *More Information About Prescription Drug Abuse*, PEERx Program: <http://teens.drugabuse.gov/our-projects/peerx>
- *Choose Your Path Videos*, PEERx Program: <http://teens.drugabuse.gov/our-projects/peerx/choose-your-path>

Drugs of Abuse

Posts From the Sara Bellum Blog

Cough and Cold Medications: Use Only as Directed

By The Sara Bellum Blog Team

To arm themselves for winter and cold season, many people purchase over-the-counter drugs, which are those that don't require a doctor's prescription. Taken as directed, over-the-counter cold medications like cough syrups are safe and can help relieve annoying cold symptoms that interrupt our lives.



However, some teens are abusing these otherwise safe medications. Scientists at the National Institute on Drug Abuse refer to this dangerous practice as “robotripping.”

What Is Robotripping?

Named in reference to Robitussin, one of the most common cold medicines, “robotripping” describes the act of abusing cough and cold syrups by taking more than the recommended dose on the label. The active ingredient in cold syrups, Dextromethorphan (DXM), is a drug that suppresses coughing. Like many other medications, when DXM is abused—taken in high doses and for the wrong reasons—the consequences can be extremely dangerous.

Someone who consumes more than the recommended amount of DXM is likely to experience hallucinations or dissociative “out of body” feelings for up to 6 hours. These side effects are similar to the hallucinations people experience when they abuse an illegal drug like PCP.

But feeling detached from your body and hallucinating is just the start. Ingesting more cough syrup than recommended on the label can cause impaired motor function, numbness, nausea, vomiting, increased heart rate and blood pressure, permanent brain damage, and even death.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/cough-and-cold-medications-use-only-directed>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Cough and Cold Medications: Use Only as Directed

1. What is “robotripping”?
2. What are the effects of taking too much DXM?
3. When abused, cough and cold medicine produces the same side effects as what type of illegal drug?

Related Resources

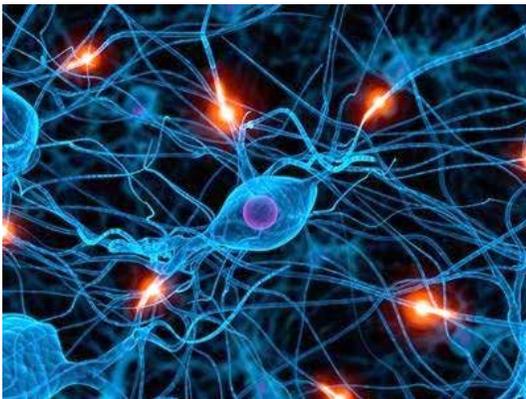
- *Medications and Alcohol Don't Mix*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/medications-and-alcohol-dont-mix>
- *Catching Some ZZZZs: Safe Ways To Get to Sleep*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/catching-some-zzzzs-safe-ways-get-sleep>
- *Drug Facts: Prescription Drug Abuse*, NIDA for Teens:
<http://teens.drugabuse.gov/drug-facts/prescription-drugs>
- *More Information About Prescription Drug Abuse*, PEERx Program:
<http://teens.drugabuse.gov/our-projects/peerx>
- *Choose Your Path Videos*, PEERx Program:
<http://teens.drugabuse.gov/our-projects/peerx/choose-your-path>

Drugs of Abuse

Posts From the Sara Bellum Blog

Word of the Day: Polyneuropathy

By The Sara Bellum Blog Team



Polyneuropathy is a “permanent change or malfunction of nerves.” “Poly” means “many,” so multiple nerves throughout the body such as in the arms, legs, hands, and feet are affected.

Possible symptoms of polyneuropathy are weakness, the feeling of pins and needles, or burning pain. In the most extreme cases, people can have trouble breathing and experience organ failure.

Many things can cause polyneuropathy, from genetics to a nutritional deficiency. But something else can also cause it—inhaling toxic, poisonous fumes, like those found in certain household products, in order to get high.

Long-term inhalant abuse can break down myelin, a fatty tissue that surrounds and protects some nerve fibers. Myelin helps nerve fibers carry their messages quickly and efficiently throughout the body and to the brain. Damaged myelin can lead to muscle spasms and tremors or even permanent difficulty with basic actions like walking, bending, and talking.

Don’t forget about sudden sniffing death, which can occur when inhaled fumes fill up the cells in the lungs with poisonous chemicals, leaving no room for the oxygen needed to breathe. This lack of oxygen can lead to nerve damage, suffocation, and even death.

Sudden sniffing death could occur during a person’s 100th time using inhalants or the first time. There’s no way to predict it.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/word-day-polyneuropathy>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Word of the Day: Polyneuropathy

1. What is sudden sniffing death and when might it happen?
2. How does inhalant abuse affect the body?
3. How are polyneuropathy and inhalant abuse related?

Related Resources

- *Word of the Day: Axon*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/word-day-axon>
- *Twenty Years of Inhalant Abuse Awareness*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/twenty-years-inhalant-abuse-awareness>
- *Inhalants*, Mind Over Matter Lesson Plan Materials: <http://teens.drugabuse.gov/educators/curricula-and-lesson-plans/mind-over-matter/inhalants>
- *Drug Facts: Inhalants*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/inhalants>

Drugs of Abuse

Posts From the Sara Bellum Blog

What Are Designer Drugs?

By The Sara Bellum Blog Team

The term “designer drugs” refers to drugs that are created in a laboratory (typically, an “underground,” or secret, illegal lab). A designer drug is created by changing the properties of a drug that comes from a plant—such as cocaine, morphine, or marijuana—using the tools of chemistry. The resulting “designer” drugs typically have a new, different effect on the brain or behavior.

Examples of Designer Drugs

MDMA (Ecstasy), ketamine, GHB, Rohypnol, LSD (acid), and methamphetamine are some examples of designer drugs. These drugs may also be referred to as “club drugs” because of their use in night clubs.

Since many designer drugs are created in illegal labs, their ingredients and potency (how strong they are) vary a lot, making it nearly impossible to know what is actually in them or what they can do to you. For example, Ecstasy tablets are often contaminated with other things, like ephedrine (used to treat allergies and asthma), ketamine (an injected anesthetic given for minor surgeries), and methamphetamine (another illicit drug).

It is not surprising that these unknown mixtures can cause dangerous side effects, such as seizures, memory loss, coma, and even death.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/real-teens-ask-what-are-designer-drugs>.



Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: What Are Designer Drugs?

1. Is there a difference between designer drugs and club drugs?
2. Why are drugs like LSD and Ecstasy called “designer drugs”?
3. What is one reason why designer drugs are so dangerous?

Related Resources

- *Word of the Day: Psychoactive Drugs*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/word-day-psychoactive-drugs>
- *Rap Music and Molly*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/rap-music-and-molly>
- *Drug Facts: MDMA (Ecstasy, Molly)*, NIDA for Teens:
<http://teens.drugabuse.gov/drug-facts/mdma-ecstasy-or-molly>
- *Real Questions From Real Teens*, NIDA for Teens:
<http://teens.drugabuse.gov/drug-facts/real-questions-real-teens>
- *Club Drugs*, National Institute on Drug Abuse:
<http://www.drugabuse.gov/drugs-abuse/club-drugs>
- *DrugFacts: Club Drugs*, National Institute on Drug Abuse:
<http://www.drugabuse.gov/publications/drugfacts/club-drugs-ghb-ketamine-rohypnol>

Drugs of Abuse

Posts From the Sara Bellum Blog

Cocaine and the Teen Brain

By The Sara Bellum Blog Team



The human brain continues to grow during the teen years, well into the twenties. It's a scientific fact that abusing drugs and alcohol while your brain is still developing can change the brain's structure and how it works—both in the short and long term.

Yale University scientists recently explored how some of these changes occur when the brain is exposed to the stimulant cocaine—and learned that some changes result from the brain trying to protect itself.

Your Brain's Self-Defense

When exposed to cocaine for the first time, the teen brain tries to defend itself against the harmful drug by changing the shape of the brain cells (or neurons) and synapses. This defensive reaction is controlled by a certain pathway in the brain involving **integrin beta1**, a crucial gene in the development of the nervous system in humans and most animals. The scientists discovered that if they blocked the pathway—and prevented this cell-shape change—the mice became three times more sensitive to the effects of cocaine.

This research may explain why some people who use cocaine end up addicted to the drug while others escape its worst effects. Everyone's genetic makeup is unique. It's possible that those with strong integrin beta1 pathways are better able to avoid the dangerous effects of the drug. More research is needed to discover which genes can protect the brain from the effects of cocaine and other drugs.

Good News: Cocaine Use Is Down

The number of teens using cocaine has been steadily declining over the past decade. In fact, use among all age groups is down.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/cocaine-teen-brain>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Cocaine and the Teen Brain

1. What does the teen brain do to protect itself from the effects of cocaine?
2. How do people's genes affect their likelihood of becoming addicted to cocaine?
3. Why is abusing cocaine as a teenager particularly risky?

Related Resources

- *How Does Cocaine Work? It's Partly in Your Genes*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/how-does-cocaine-work-its-partly-your-genes>
- *Teen Brain, a Work in Progress*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/teen-brain-work-progress>
- *Whitney Houston: Cocaine and Heart Disease*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/whitney-houston-cocaine-and-heart-disease>
- *Drug Facts: Stimulants*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/stimulants>
- *Cocaine*, National Institute on Drug Abuse: <http://www.drugabuse.gov/drugs-abuse/cocaine>
- *Monitoring the Future*, National Institute on Drug Abuse and University of Michigan:
<http://www.monitoringthefuture.org>

Drugs of Abuse

Posts From the Sara Bellum Blog

Real Teens Ask About Effects of Heroin

By The Sara Bellum Blog Team

Why do people scratch a lot when they are high on heroin?



The simple answer: Heroin activates connections in the brain called opioid receptors. These receptors then activate fibers that transmit itch information (aka “pruritus”) to the brain. Thus, heroin users feel itchy.

But before heroin can activate opioid receptors, it has to enter the blood stream and reach the brain. So how does this happen?

People usually inject heroin into their blood stream with a syringe. Soon afterwards, the heroin crosses the “blood-brain barrier”—a protective membrane that separates circulating blood from brain fluid in the central nervous system. Once in the brain, heroin is converted to a chemical called morphine and binds rapidly to the opioid receptors already mentioned. These receptors recognize chemicals affecting pain, like morphine.

Heroin users typically report feeling a surge of pleasure, or a “rush,” which makes sense because heroin enters the brain so rapidly. This quality also makes it extremely addictive. Along with the rush usually comes a warm flushing of the skin, dry mouth, and a heavy feeling in the arms and legs, which may be accompanied by nausea, vomiting, and, of course, severe itching. Also, since heroin is a depressant, it clouds your thinking and can slow—or even stop—breathing.



Because heroin is mostly sold on the street, users can't be sure of the purity (or strength) of the drug they're taking. Also, because it's so addictive, they may crave bigger and bigger amounts of the drug to get the same rush they got the first time—which often leads to overdose and death.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/real-teens-ask-about-effects-heroin>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Real Teens Ask About Effects of Heroin

1. How does heroin interact with the brain?
2. What type of drug is heroin?
3. What are the effects of heroin?

Related Resources

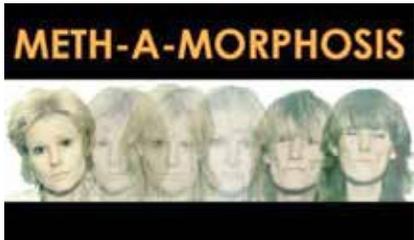
- *Real Teens Ask: What Are Opioids?* Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/real-teens-ask-what-are-opioids>
- *Prescription Opioid Abuse Can Lead to Heroin Abuse*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/prescription-opioid-abuse-can-lead-heroin-abuse>
- *Opioids*, Mind Over Matter Lesson Plan Materials:
<http://teens.drugabuse.gov/educators/curricula-and-lesson-plans/mind-over-matter/mom-teachers-guide/opiates>
- *Drug Facts: Opioids and Pain Reliever Facts*, NIDA for Teens:
<http://teens.drugabuse.gov/drug-facts/opioids-and-pain-reliever-facts>
- *Heroin*, National Institute on Drug Abuse: <http://www.drugabuse.gov/drugs-abuse/heroin>

Drugs of Abuse

Posts From the Sara Bellum Blog

Meth Mouth and Crank Bugs: Meth-a-morphosis

By The Sara Bellum Blog Team



Not only can meth mess up your body's chemical structure and even cause problems with your heart and lungs, it also changes your appearance and behavior. Soon, meth users might not even look or act like themselves.

Bad news for teeth and skin. Ever heard of “meth mouth?” It isn't pretty. Meth reduces the amount of protective saliva around the teeth. People who use the drug also tend to drink a lot of sugary soda, neglect personal hygiene, grind their teeth, and clench their jaws. The teeth of meth users can eventually fall out—even when doing something as normal as eating a sandwich. As if that's not bad enough, meth can also cause skin problems—and we're not just talking about regular zits.



Meth users' skin can start to look like this because they frequently hallucinate—or strongly imagine—that they've got insects creeping on top of or underneath their skin. The person will pick or scratch, trying to get rid of the imaginary “crank bugs.” Soon, the face and arms are covered with open sores that could get infected.

Photo courtesy of Sheriff's Department, Multnomah County, Oregon



Photos courtesy of Sharlee Shirley, RDH, MPH; Jim Cecil, DMD, MPH, University of Kentucky, School of Dentistry

No peace of mind. In addition to the “crank bug” hallucinations, long-term meth use leads to problems such as irritability, fatigue, headaches, anxiety, sleeplessness, confusion, aggressive feelings, violent rages, and depression.

Users may become psychotic and experience paranoia, mood disturbances, and delusions. The paranoia may even make the person think about killing themselves or someone else.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/meth-mouth-and-crank-bugs-meth-morphosis>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Meth Mouth and Crank Bugs: Meth-a-morphosis

1. How does meth abuse affect dental health?
2. Why do people who abuse meth often end up with sores on their arms and face?
3. How can meth affect a user's mental health?

Related Resources

- *Leads for Treating Methamphetamine Addiction*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/leads-treating-methamphetamine-addiction>
- *Meth Dead Don't Get Eaten*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/meth-dead-dont-get-eaten>
- *Drug Facts: Stimulants*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/stimulants>
- *Methamphetamine*, Mind Over Matter Lesson Plan Materials:
<http://teens.drugabuse.gov/educators/curricula-and-lesson-plans/mind-over-matter/mom-teachers-guide/methamphetamine>
- *Methamphetamine*, National Institute on Drug Abuse:
<http://www.drugabuse.gov/drugs-abuse/methamphetamine>

Drugs of Abuse

Posts From the Sara Bellum Blog

Meet Molly: The Truth About MDMA

By The Sara Bellum Blog Team



In 2012, Madonna created some buzz when she mentioned “Molly” at Miami’s Ultra Music Festival. Madonna shouted to the audience, “How many people in the crowd have seen Molly?” Madonna was talking about the song “Have You Seen Molly?” by Cedric Gervais. However, “Molly” is also a nickname for MDMA. Many news outlets reported that the legendary pop singer was talking about drugs, not the song. Madonna responded by saying, “I don’t support drug use and I never have.”

All About Molly

We were happy to hear that Madonna doesn’t encourage her fans to use MDMA, because it’s a very dangerous drug. MDMA is manmade—similar to the stimulant methamphetamine. It’s commonly used at dance clubs and concerts, and can make people feel like they have more energy and less fear. But the myths about MDMA being pure and safe are definitely not true.

Let us introduce you to the real Molly.

- **Molly Is Often Mixed Up.** MDMA is a synthetic drug, meaning that it’s made of chemicals. It comes in colorful pills, tablets, or capsules that sometimes have cartoon-like images on them. Sometimes each pill, or batch of pills, can have different combinations of substances in the mix and cause unknown consequences.
- **Molly Makes You Hyper.** People who use MDMA might feel very alert, or “hyper.” But MDMA can also cause muscle cramping, nausea, blurred vision, increased heart rate and blood pressure—and in rare cases, hyperthermia and even death.
- **Molly Can Depress You.** Potential side effects of MDMA include feelings of sadness, anxiety, depression, and memory difficulties. These can last for several days to a week (or longer in people who use it regularly).
- **Molly Is Dangerous.** MDMA can be extremely dangerous in high doses—increasing the risk of seizures and compromising the heart’s ability to maintain its normal rhythms. A study in animals showed that exposure to high doses of MDMA for 4 days produced brain damage that could still be seen 6 to 7 years later.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/meet-molly-truth-about-ecstasy>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Meet Molly: The Truth About MDMA

1. What type of drug is Molly?
2. What are some of the effects of Molly?
3. Why is Molly risky and what are the risks of using Molly?

Related Resources

- *Rap Music and Molly*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/rap-music-and-molly>
- *Word of the Day: Psychoactive Drugs*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/word-day-psychoactive-drugs>
- *Real Teens Ask: What Are Designer Drugs?* Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/real-teens-ask-what-are-designer-drugs>
- *Drug Facts: MDMA (Ecstasy Molly)*, NIDA for Teens:
<http://teens.drugabuse.gov/drug-facts/mdma-ecstasy-or-molly>

Drugs of Abuse

Posts From the Sara Bellum Blog

“Spice” – Not as Fun as it Sounds

By The Sara Bellum Blog Team

Spice—also known as K2, Fake Marijuana, Skunk, and other names—is a synthetic (or manmade) substance made from shredded dried plant materials and chemicals. Spice appears to stimulate the same brain receptors—molecules that recognize specific chemicals and transmit messages into cells—as marijuana does and produces a similar “high.”

Like marijuana, Spice is usually abused by smoking, but it can be prepared as a drink.

Because Spice is marketed as being “natural,” some people may think it’s safe to use. But the ingredients used to make Spice can vary, and no one’s watching to see what people producing Spice are using—meaning the results could have dangerous effects on your body and brain. Some mixtures even contain harmful metal residues.



Image courtesy of Coolidge Youth Coalition

Nothing Nice

Spice products are labeled “not fit for human consumption” and are illegal in the United States and most European countries. Its side effects, like the ingredients, often vary, but emergency rooms report seeing people with rapid heart rates, vomiting, agitation, and hallucinations.

Using Spice can lead to abuse and even addiction as the body builds up tolerance to the drug’s effects over time and craves a higher dose to achieve the same effect.

So, the Sara Bellum Blog’s recommendation? Get your highs the natural way: exercise, friends, music, whatever you like to do—without altering your brain’s chemistry!

Find the original blog post at <http://teens.drugabuse.gov/blog/post/spice-not-fun-it-sounds>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: “Spice” – Not as Fun as it Sounds

1. What is Spice?
2. What are the side effects of Spice?
3. What other drug affects the same parts of the brain as Spice?

Related Resources

- *Spice: “If You Use It, You’re Experimenting on Yourself,”* Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/spice-if-you-use-it-youre-experimenting-yourself>
- *Drug Facts: Spice*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/spice>
- *DrugFacts: Spice (Synthetic Marijuana)*, National Institute on Drug Abuse: <http://www.drugabuse.gov/publications/drugfacts/spice-synthetic-marijuana>

Drugs of Abuse

Posts From the Sara Bellum Blog

Keep “Bath Salts” in the Tub

By The Sara Bellum Blog Team

Bath salts. The name sounds innocent enough, like an old-fashioned cure for tired feet. But these days, “bath salts” are far from what you would find in your local soap aisle at the grocery store or day spa. Bath salts are a new type of drug laced with synthetic stimulants, which people use to get high by swallowing, snorting or injecting them. And... they have just been made illegal.



What Are Bath Salts?

Because these drugs are relatively new and for now unregulated by the U.S. Drug Enforcement Agency (DEA), scientists are not exactly sure of the ingredients in each brand. We do know that the chemicals in these bath salts mimic the effects of amphetamines—stimulants like cocaine or meth—such as racing heart, increased blood pressure and body temperature, and even seizures, which have brought many people to emergency rooms across the country.

According to the head of the Louisiana Poison Center, at least 84 people in that state were hospitalized in 2010 after getting high from bath salts. Nationwide, more than 4,000 calls about bath salts have come in to poison centers during the first 7 months of 2011—up from 303 calls in all of 2010.

Risks

It is too early to tell what the exact short- and long-term effects from abusing bath salts is, but what little we do know so far is alarming enough. Effects can include extreme paranoia, hallucinations, and suicidal thoughts, as well as chest pains, soaring blood pressure, and rapid heartbeat. A number of deaths were reported in people who took the drug, including at least one possible suicide.

Several states, including Hawaii, Louisiana, and Michigan, have introduced laws to ban bath salts. The DEA just announced it will make selling or possessing these chemicals illegal for a year while they study them further. If anyone offers you bath salts as a way to get high, let them know not only are they taking big risks, they are also doing something illegal.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/keep-bath-salts-tub>.

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Keep “Bath Salts” in the Tub

1. What type of drugs are bath salts?
2. What are some of the effects of bath salts?
3. What is the legal status of bath salts in the United States?

Related Resources

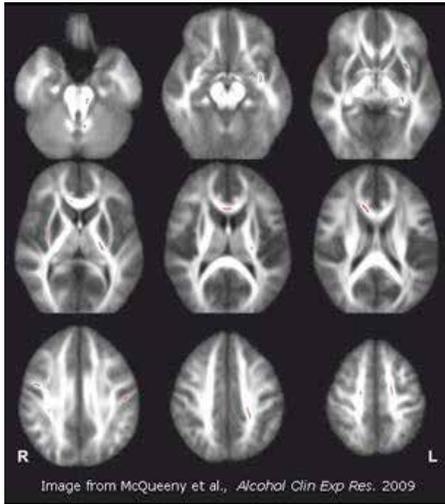
- *Bath Salts: An Emerging Danger*, Sara Bellum Blog: <http://teens.drugabuse.gov/blog/post/bath-salts-emerging-danger>
- *Drug Facts: Bath Salts*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/bath-salts>
- *Drug Facts: Stimulants*, NIDA for Teens: <http://teens.drugabuse.gov/drug-facts/stimulants>
- *Bath Salts (Synthetic Cathinones)*, National Institute on Drug Abuse: <http://www.drugabuse.gov/drugs-abuse/bath-salts-synthetic-cathinones>

Drugs of Abuse

Posts From the Sara Bellum Blog

Binge Drinking Matters—To Your Brain

By The Sara Bellum Blog Team



This figure from Dr. Tapert’s paper shows a series of MRI scans of a human brain. The scans are like slices through a brain from bottom (top left) to top (bottom right), moving across the rows from left to right. The red dots mark specific places in the brain’s white matter where Dr. Tapert’s team saw differences between teens who binge drink and those who don’t.

“drinkers”) was drink at least four (for women) or five (for men) drinks in one sitting, at least one time during the previous 3 months.

How could it be possible for just a few sessions of heavy drinking to affect the white matter of the brain? Well, science has shown that alcohol can poison brain cells and can alter the brain’s white matter in adult alcoholics. Dr. Tapert thinks that teenagers’ brains are even more susceptible this way. She says, “because the brain is still developing during adolescence, there has been concern that it may be more vulnerable to high doses of alcohol.”

Many questions still remain, including how long it takes before these changes occur, and how much they affect the function of the brain. To figure this out, scientists would have to look at the binge drinkers’ brains before and after they started drinking. That way, they can tell if the differences might have already been there before the teens started drinking. It’s possible that having abnormal white matter in the brain somehow increases the chance of being a binge drinker. In order to answer that question, Dr. Tapert says they need to do longer studies that follow teens’ brain growth over time. The bottom line? If you’re a teen, drinking to the point of getting drunk could damage the white matter of your brain—even if you do it only once in a while.

Find the original blog post at <http://teens.drugabuse.gov/blog/post/binge-drinking-matters-your-brain>.

I’m sure you’ve heard that abusing alcohol hurts your health. But how many years of drinking do you think it takes to visibly affect your brain? Ten years? Twenty?

It turns out that it doesn’t take that long at all—in fact, scientists can already see changes in the brains of *teenagers* who drink.

In a new research study, Professor Susan Tapert of the University of California at San Diego used an imaging machine called an MRI to scan the brains of teens who binge drink—defined as drinking 4 or 5 (or more) drinks in a couple of hours. Dr. Tapert found that the “white matter” in their brains—the part that transmits signals, like a television cable or a computer USB cord—was abnormal when compared with the white matter of teens who don’t binge drink. Transmitting signals is a big part of what the brain does, so affecting the white matter in this way could also affect thinking, learning, and memory.

The really scary part is that these teens weren’t alcoholics, and they didn’t drink every day. All they did (to be considered “binge

Drugs of Abuse

Posts From the Sara Bellum Blog

Discussion Questions: Binge Drinking Matters – To Your Brain

1. What is binge drinking?
2. How does binge drinking as a teen affect the brain?
3. What is white matter in the brain?

Related Resources

- *Teen Party Movies: Epic Adventure or Bad Hangover?* Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/teen-party-movies-epic-adventure-or-bad-hangover>
- *St. Patrick's Day: Leprechauns, Shamrocks, and... Binge Drinking?* Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/st-patricks-day-leprechauns-shamrocks-and-binge-drinking>
- *Alco-Pops: A Refreshment to Rethink*, Sara Bellum Blog:
<http://teens.drugabuse.gov/blog/post/alco-pops-refreshment-rethink>
- *Binge Drinking*, Centers for Disease Control and Prevention:
<http://www.cdc.gov/alcohol/fact-sheets/binge-drinking.htm>
- *Binge Drinking May Hamper Information Relay System in Teen Brain*, University of California, San Diego: <http://ucsdnews.ucsd.edu/newsrel/health/04-09BingeDrinking.asp>
- *Rethinking Drinking*, National Institute on Alcohol Abuse and Alcoholism:
<http://rethinkingdrinking.niaaa.nih.gov>

Drugs of Abuse

Posts From the Sara Bellum Blog

More Resources

Web Sites and Online Tools

- Sara Bellum Blog: <http://teens.drugabuse.gov/blog>
- NIDA for Teens Web Site: <http://teens.drugabuse.gov>
 - Drug Facts: <http://teens.drugabuse.gov/drug-facts>
 - Test Your Knowledge (online drug facts quizzes):
<http://teens.drugabuse.gov/activities/test-your-knowledge>
- NIDA's PEERx Program (teen prescription drug abuse prevention materials):
<http://teens.drugabuse.gov/our-projects/peerx>
 - Choose Your Path Videos (where the viewer can choose what the characters do):
<http://teens.drugabuse.gov/our-projects/peerx/choose-your-path>
- Easy-to-Read Drug Facts: <http://easyread.drugabuse.gov>
- Heads Up: Drugs and Your Body (lesson plans and materials): <http://headsup.scholastic.com>
- National Institute on Drug Abuse Home Page: <http://www.drugabuse.gov>
- Family Checkup: Positive Parenting Prevents Drug Abuse: <http://www.drugabuse.gov/family-checkup>

Publications

- Drugs, Brains, and Behavior: The Science of Addiction:
<http://www.drugabuse.gov/publications/science-addiction>
- Preventing Drug Abuse Among Children and Adolescents:
<http://www.drugabuse.gov/publications/preventing-drug-abuse-among-children-adolescents>
- DrugFacts Fact Sheets: <http://www.drugabuse.gov/publications/term/160/DrugFacts>